16365/A/2

F. VII
19/6

54654

AN ESSAY

ON THE USE OF

A REGULATED TEMPERATURE

IN

Winter-Cough & Consumption:

INCLUDING A COMPARISON OF THE DIFFERENT METHODS OF
PRODUCING SUCH A TEMPERATURE IN THE
CHAMBERS OF INVALIDS.

LONDON INSTITUTION

BY ISAAC BUXTON, M.D.

*Physician to the London Hospital and to the
Surry Dispensary.*

LONDON:
PRINTED FOR COX, ST. THOMAS'S-STREET,
BOROUGH.
SOLD BY J. MURRAY, AND S. HIGHLEY, FLEET-STREET;
J. CALLOW, CROWN-COURT, SOHO; AND GALE
AND CURTIS, PATERNOSTER-ROW.
1810.

WELLCOME
HISTORICAL
MEDICAL
LIBRARY

T. Bensley, Printer,
Bolt Court, Fleet Street, London.

PREFACE.

The title-page of this essay so clearly explains the intention of its author in publishing the following sheets, that it would be useless in a preface to state my design more fully. If I conceived that regulated temperature had been sufficiently urged and illustrated by former writers, I never would have obtruded on the public my own observations relative to this subject. But as the number of authors, who have given us their sentiments of the remedy, is extremely small, and as it is very rarely employed, I apprehend that an essay on so interesting a topic would not be devoid of utility. I hope this work will be found to possess a sufficient degree of merit to draw for a moment the attention of medical men to an important but neglected auxiliary; and so far to remove objections to its employment from the minds of patients, that, when proposed by a professional attendant, it may not be considered as an untried, unpromising, experiment. That the following sheets might not be unworthy of perusal, it has been my endeavour, as far as I was able, to investigate the merits of a regulated temperature; and, having obtained evidence of its utility abundantly sufficient to satisfy my own mind, to lay before the public the result of my inquiries in as plain and forcible a manner as I am capable of doing. I might perhaps have had much greater experience of its powers, had I delayed the publication of this essay a few seasons; because, at the London Hospital the temperature being regulated by means of steam, in future winters I shall, possibly, have an opportunity of employing the remedy extensively among my hospital patients. But as I have paid considerable attention to this subject for several years past, and have not made up my own mind, until after a close and minute investigation, I judged such a delay altogether needless. The circumstances, which first directed my thoughts to a regulated temperature, occurred during a residence of two years in Germany, commencing in the summer of 1800. Attention to this object once excited, was kept alive by its probable importance as a highly useful remedy.

I beg Messrs. Reed, Shillitoe, and Wallace, would accept my best thanks for the obliging and ready permission, which they gave me, of mentioning their names in the following essay. To Dr. Jenner I am deeply indebted for his very friendly communication, which has much increased the value of these pages, both on account of the importance of the case itself, and of the high authority whence it is derived.

I. B.

Fenchurch-street,
Dec. 1809.

CONTENTS.

PAGE.
§ I. *Of Consumption.* . . 1
II. *Of Winter-cough.* . . 3
III. *Of the frequency of Winter-cough and Consumption.* 10
IV. *Of the Fatality of these Disorders.* . . 16
V. *Of the usual Terminations of Winter-cough.* . 23
 1. *Consumption.* . . 26
 2. *Inflammation of the Lungs.* 28
 3. *Dropsy.* . . . 32
 4. *Water in the Chest.* . 35
VI. *How Winter-cough and Consumption are caused.* . 39

PAGE.

§ VII. *How they are to be remedied.* . . . 45

VIII. *Of regulated equable Temperature.* . . . 51

IX. *Arguments shewing the Utility of a regulated Temperature.* . . . 55

X. *Cases shewing the Utility of a regulated Temperature in Consumption.* . 70

XI. *Mr. Billingsley's Case.* 73

XII. ——— *Case.* . 81

XIII. *Mrs. —— Case.* . 83

XIV. *Cases under the Care of the Author.—Miss H's Case.* 86

XV. *Miss B's Case.* . . 93

XVI. *Testimonies in favour of re-*

PAGE.
gulated Temperature in Winter-cough. . . 97
§ XVII. *Mr. R's Case.* . 100
XVIII. *Difficulties in establishing a regulated Temperature.* . . 105
XIX. *Requisites in Fire-places intended to produce regulated Temperature.* 109
XX. *Of the English open Fire-place.* . . 117
XXI. *Of the German Stove.* 129
XXII. *Of a Stream of heated Air.* . . 146
XXIII. *Of the compound German Stove.* . . 151
XXIV. *Hints to the Consumptive*

PAGE.

who adopt a Regulated Temperature. . 164

XXV. *Hints to Persons afflicted with Winter Cough who adopt a Regulated Temperature.* . 172

AN ESSAY

ON THE USE OF A

REGULATED TEMPERATURE.

§ I. *Of Consumption.*

Consumption has been so well described by a variety of different writers, that it would be superfluous in me to attempt to delineate what has been so frequently done by very able hands. It is likewise so common, that there is scarcely an individual in this island, who has not repeatedly seen the complaint. From an actual view of the disease a much better idea will be formed of its nature, than can be obtained by the best possible verbal description. This description is the less necessary, as I merely wish my readers to understand what I mean by the term consumption; and not to enter into the various shades of distinction, by which the disorder in one person differs from the disorder in another, or in the same person at different periods of the complaint.

§ II. *Of Winter-cough.*

It is absolutely necessary that I should be more minute in my description of what I mean by "Winter-cough;" because this disease, although perhaps more frequent than consumption, has not been described so often and so minutely, or treated of with the same degree of accuracy. Those who are affected with winter-cough, generally feel themselves very well during the warm weather of summer. But, when the winter comes on, they are afflicted with severe coughing. This cough is often so extremely troublesome during the night, as almost entirely to deprive them of rest. It is generally brought on with a considerable degree of violence whenever they go out into the cold air; and is easiest during the time of their continuance in a warm room. The difference between the heat of a warm apartment, and that of places not warmed, is often so perceptible to their tender lungs, that the moment they open the door of the sitting room in order to go out, they begin to cough severely. Their breath is generally extremely short, so short that they frequently walk about with a considerable degree of difficulty; and an exertion rather greater than usual is very severely felt. If they draw in the breath deeply, pain is often occasioned in the chest, together with sudden catching and cough. Tightness across the same part is another symptom which they experience. Patients with this complaint in general expectorate considerably. The expectoration varies much: but, for the most part, it is thick, and large in quantity. They have often pains in different parts of the chest; but most frequently at the pit of the stomach. Sometimes they spit blood; but the quantity is usually not very large. Their complaints vary in the winter-season, according to the state of the weather; so that when the wind is southerly they feel relieved, and when it changes to the north or north-east, every symptom is materially aggravated. During the winter these persons generally decrease in their flesh and strength. Hence towards the latter end of winter or beginning of spring they are extremely thin and debilitated. Patients of this description are very liable to take cold, because their lungs are already much weakened: and, when they have caught cold, the cough, the pain, the expectoration, the shortness of breath, and other symptoms, are considerably aggravated.

As the spring advances, and mild weather comes on, the cough and other affections of the chest gradually abate; till, on the arrival of warm, settled summer-weather, it, together with its troublesome attendants, entirely quits them; and probably they enjoy, for a time, the pleasing hope that they are now thoroughly recovered. This hope is increased in consequence of the renewal of their strength and their acquisition in bulk. But the succeeding winter destroys the pleasing delusion. They are again affected with the winter-cough; and, if the weather is at all severe, most probably in a greater degree than during the preceding winter. In general the cough and other symptoms of the complaint become worse and worse every succeeding winter; and the remission between the attacks, during the summer, shorter, till at last patients frequently have the cough both winter and summer, although most severely during the winter. The terminations of this disorder I shall speak of more particularly hereafter. Such are the symptoms usually accompanying the disease here distinguished by the name of winter-cough, the cough forming the leading feature in this chain of morbid appearances, and the temperature almost always influencing its presence or absence. The same train of symptoms has had various denominations applied to it by different persons in and out of the medical profession, *e. g.* chronic catarrh, and asthma. I do not adopt the term chronic catarrh, (perhaps the most proper denomination) because, although understood by medical men, it would not be so readily apprehended by others: nor do I employ the word asthma, because I think it better to follow Cullen's example, and to confine the use of that expression to one particular kind of complaint. Winter-cough is not the term I would fix on, were I writing a system of nosology, as I am well aware that it is liable to some objections. But since it is generally adopted in common life, not liable to ambiguity, being intelligible to persons medical and non-medical, and sufficiently designating the disease in question, I thought proper to employ it.

§ III. *Of the frequency of Winter-cough and Consumption.*

Were winter-cough and consumption diseases of rare occurrence, they might less demand attention. But the fact is far otherwise; for in England there are no complaints more common. That cough, either in the active or chronic state, is extremely frequent, requires no proof. Every public assembly, whether in a church or elsewhere, sufficiently informs us of this fact; for, out of the whole body who make up such an assembly, we shall probably, during the winter, find that one third are affected with cough.

It is to be recollected, that consumption and winter-cough frequently date their rise from a common cough or cold. But it is necessary to proceed to more authentic documents; for these random modes of judging are not sufficient to establish any fact with a due degree of precision. Dr. Willan, in his "Reports on the Diseases of London," has given the number of patients under his care, together with their diseases, during the period of which he treats. From the 1st of January to the 20th of March, 1799, the total number of patients was 795. Of these 173 were afflicted with cough and dyspnœa (shortness of breath); 29 with pulmonary consumption, making a total of 202, or rather more than one fourth. From the 20th of Dec. 1799, to the 15th of March 1800, the total number under his care was 910; of whom 151 had cough and dyspnœa, 46 pulmonary consumption, making a total of 197, or between one fourth and one fifth. In the quarterly reports of the Carey-street Dispensary, given by Dr. Bateman in the Edinburgh Medical and Surgical Journal, from the 30th of November 1806, to the 28th of February 1807, patients were admitted to the number of 549. Of these 85 were afflicted with chronic catarrh, 25 with hæmoptysis (spitting of blood) and phthisis (consumption), making a total of 110, or one-fifth part of the whole number during that period. From the 30th of November 1807, to the 29th of Feb. 1808, the admissions were 506. Of these 75 were for chronic catarrh, 15 for hæmoptysis and phthisis, making a total of 90, which is somewhat less than one fifth part. By consulting the registers of other years, and of some of the succeeding months of the same years, it will be found, that in other years, and later in the season, these diseases abounded as much as they did during the periods I have quoted. I could easily refer to a variety of other reports by different authors; but as they would merely speak the same language, it appears to me that those which I have already produced are sufficient. Of the number of patients under my own care, public and private, I need say nothing; as I conceive it better to cite documents which are open to the perusal of every one, (and where the author could not possibly have any view to my particular opinions) than to give the result of my own practice, where it might be supposed that I should be partial. I have here said nothing of catarrh or cough in the active state; although it is not improbable, that I might very fairly have taken many of these cases into my account, as a catarrh is very often the commencement or first stage of winter-cough or consumption. From the observations I have just made, I think we may say, without exceeding the bounds of truth, that about one fifth of the number of patients requiring medical treatment during the winter season are affected with one or other of these complaints; or, to speak on the very lowest calculation, say that one sixth of the total number of patients during that period are affected with winter-cough or consumption. I have not a doubt that the experience of every medical practitioner would lead him to draw a corresponding conclusion.

§ IV. *Of the Fatality of these Disorders.*

What renders consumption and winter-cough still more worthy of our attention is, the amazing number of persons who fall victims to these complaints. No one will be surprised that this is said relative to consumption. But that an assertion of this kind should be made relative to winter-cough, may, at first sight, appear extraordinary. Yet it is a certain fact, that a very considerable proportion of those who are affected with winter-cough, ultimately die either of that complaint or of its consequences. It is an extremely difficult point to determine the comparative number of deaths from different diseases. People, in general, might suppose that it would be very easy for each medical practitioner to become acquainted with the number of deaths which take place among his patients; yet this is by no means so easy as might be expected. I have, for my own part, taken considerable pains to ascertain this point with tolerable precision, but hitherto without the effect I could wish. Indeed the only registers which we possess, proceeding to any extent, and on which a degree of reliance can be placed, are the bills of mortality. And even here, from the character of the persons who make the returns, it must be supposed that mistakes very frequently arise. Yet the probability is, that these registers give us a tolerably correct idea of the number of deaths by consumption, although with some exaggeration. But of the deaths by winter-cough they give us no adequate conception. Consumption is a disease that kills of itself, *i. e.* without inducing another disease, which, although a consequence of the first complaint, puts on a particular character. Winter-cough superinduces other complaints, which kill the patient; the death is then set down to the latter disorder and not to the winter-cough. Yet, if you could previously have removed the winter-cough, the other complaint never would have made its appearance. Having before spoken of the years 1798, 1799, 1806, and 1807, I shall give the returns of those years from the bills of mortality. I would merely observe, that by the terms asthma and phthisic I conceive that what is here termed winter-cough is intended.

1798. Total number of deaths in London 18,151
By asthma and phthisic 421
By consumption - 4,533— 4,954
Rather less than one fourth of the total.

1799. Total deaths		18,134
Asthma and phthisic	663	
Consumption	4,843—	5,506

Between one third and one fourth of the total.

1806. Total deaths		17,938
Asthma and phthisic	382	
Consumption	3,996—	4,378

Rather less than one fourth of the total.

1807. Total deaths		18,334
Asthma and phthisic	523	
Consumption	4,964—	5,487

Between one third and one fourth of the total.

Hence it will appear from the bills of mortality in London, that about one person in four who dies, falls a victim to consumption or winter-cough. Other accounts tend to the same point.

Dr. Beddoes (Hygeïa, Essay vii. p. 6.) observes, " Of 1654 buried in one parish in Bristol, 683 stand under the title of consumption or decline; and from a register at Shrewsbury, it will be presently seen that for ten years, above one death in four is appropriated to consumption." He then, from the *Philosophical Transactions*, vols. LXIV. and LXV. makes the following observations. "At Chester, in the years 1774 and 1775, particular pains were taken to obtain correct lists of mortality. Strict injunctions were given that no disorder, unless attended by a cough, should be called consumption. The faculty, in general, sent written certificates, or gave verbal information, to the clerks of each parish, of what disorder the patients died. And what was the result? Did these precautions afford any reason for supposing that the London bills of mortality give too formidable an idea of the havoc made among the human species by consumption? So far from it, that in 1774 more people were found to die of this disorder in the healthful city of Chester, between the ages of 10 and 50, than of all other diseases put together. And in 1775 more died between the ages of 15 and 50."

The conclusion from these documents is, that about one person out of four who die, is destroyed by consumption, or from four to five thousand annually, within the London bills of mortality. But, if we were capable of extending our researches throughout the empire, we probably should find that this disease alone destroys annually not less than forty or fifty thousand persons. An enormous number!

§ V. *Of the usual Terminations of Winter-cough.*

To form some correct notions of the number of deaths which might be referred to winter-cough, it is necessary to enter a little into detail respecting the manner in which it proves fatal. This complaint proceeds sometimes very slowly to its termination, and will last for a very considerable number of years. From this circumstance, and from the interval of complete health, which patients very frequently enjoy during the summer, we are not apt to consider it in so formidable a light as those diseases which never leave the patient entirely free from complaint, but which continually and distinctly mark their advances towards the fatal issue. At other times winter-cough proceeds with much greater rapidity, so that the patient's career is terminated in one, two, or three winters. But, when it proceeds with its slowest motion, its progress is almost always equally sure. For a cough, which during one winter has lasted for some months, rarely fails of visiting the sufferer every successive winter, and generally with increasing violence; and whether it proceed with greater or less celerity, it usually ends in producing either consumption, inflammation of the lungs, general dropsy, or water in the chest. Frequently two or more of these diseases are ultimately conjoined. The combination of general dropsy and water in the chest is very frequent: or of inflammation of the lungs with water in the chest. Consumption and water in the chest are now and then united. Consumption arising from winter-cough is perhaps more frequently blended with dropsy.

1. *Consumption.*

With regard to consumption, instead of giving my own account of any case in which winter-cough passes into that disease, I will cite an instance from Dr. Beddoes, which may be considered as a fair specimen and transcript of what generally occurs on these occasions. (Hygeïa, Essay 7, p. 39.) "A gentleman of North Wales, of a healthy race, robust habit, and good conformation, at the age of 37, caught a violent catarrh in winter, and from perpetual renewals, laboured under severe cough with expectoration for several months. His health, in other respects, continued good. He had no hectic fever. He did not decline considerably in flesh or strength. At the setting in of summer his cough left him, and he became perfectly well. The next winter he caught cold again, and suffered as before; and once more recovered in the summer. This happened for six following years; only he found that every successive winter he more readily contracted and renewed his complaint. The seventh winter he became unwell as before; but in the warm weather he did not lose his cough. On the contrary, he grew weak, thin, and feverish. His lungs ulcerated, and he died, after a terrible struggle, of confirmed consumption."

2. *Inflammation of the Lungs.*

Inflammation of the lungs not unfrequently attacks a patient after he has suffered from winter-cough during a longer or shorter period; but generally after the lungs have been much weakened by a cough of considerable duration, and thus predisposed to inflammation. The patient catches cold, most frequently at the close of winter, or the commencement of spring. He feels, in consequence, acute pain in his side, or at the pit of the stomach. He perhaps spits up some blood occasionally, but usually in no large quantity ; his difficulty of breathing is excessively great ; his countenance is often livid. Sometimes he cannot lie down in his bed, or can lie only on one side. The quantity of phlegm which he spits up is very considerable. In a short time great debility comes on; the cough and the phlegm increase so much that the poor sufferer has no longer strength to struggle with the disease, and dies suffocated. The pain is often not very severe and acute, but rather consists in a sensation of a dull, heavy, oppressive nature, and spread over a considerable space. In this case likewise the cough and phlegm brought up are very considerable, and the debility, quickly induced, extreme, so that the patient's life is very soon destroyed. In the former case it appears that the membrane lining the exterior part of the lungs is the principal seat of complaint; in the latter the membrane lining the ramifications of the air tube. Yet from repeated observations I think I may venture to affirm, that neither of these membranes is in general the seat of severe active inflammation, without causing the other to partake in a greater or less degree of the same. The number of elderly persons who die in these ways is immense. I believe I have never passed a single spring since I began practice without losing several patients from active inflammation attacking the lungs after winter-cough had some time existed. The patient, in these cases, generally, though not always, dies in a short time after the attack has commenced. These kinds of inflammation appear to me more distressing, both to the patient and to the practitioner, than any other, as the pain, or the oppression, of the patient are most excessively great, the mode of treatment difficult to be decided on, and the success generally (to speak in the most favourable manner) extremely doubtful.

3. *Dropsy.*

When a general dropsy terminates the life of a patient who has suffered under winter-cough, it usually comes on after the cough has continued for a considerable time, and has weakened the patient very much. At first it almost always makes its appearance in the feet, those parts swelling after the patient has sat up some time, and going down when he is in bed. This is accompanied, in most cases, by a pallid countenance, and flabby feel of the muscular parts of the body. The swelling generally proceeds very gradually: the legs, and afterwards the thighs, begin to increase. When the legs have been some time enlarged, a small quantity of water is perceived in the belly. The patient now makes but little urine, which at first perhaps had not much decreased in quantity. After a time the hands and arms are enlarged: the face also sometimes is swelled. The sick man finds difficulty in lying flat in bed; but is obliged to have his head and shoulders considerably raised. His debility increases so much, that he cannot get out of bed. If the swelling takes place at the beginning of winter, the cough and shortness of breath are very much increased, and the dropsy proceeds more rapidly. If it takes place at the beginning of spring, his chance for recovery is much greater. The disease, if not very far advanced, will then sometimes yield to remedies. But often a dropsy coming on in this manner and at this period terminates fatally. Its progress under these circumstances is generally excessively slow, so that the patient lingers for a great length of time, gradually proceeding from bad to worse. The very day of writing this I am about to visit a patient labouring under a hopeless dropsy from winter-cough. Had he been treated properly from the commencement of the last winter, I am persuaded he might now have enjoyed as perfect health as generally falls to the lot of an elderly man.

4. *Water in the Chest.*

Water in the chest is produced sometimes very quickly by the inflammation of the lungs above described. The patient's life is then generally terminated in a very short space of time. Or, water may be produced more slowly, in consequence of the disease which is constantly going on in the lungs, and which ultimately will occasion the vapour, poured out into the cavity of the chest, to be effused in too great a quantity, whence accumulation gradually arises that suffocates the patient. When it comes on during active inflammation of the lungs, the symptoms before mentioned manifest themselves, and continue to increase until the poor sufferer, in a very short time, sinks under the excessive debility and continual accumulation. When it comes on more slowly, the first symptom is probably an increase in the difficulty of breathing. An incapacity of lying down flat in bed succeeds; or, if the patient does lie down, he is sometimes obliged to start from his bed, lest he should be suffocated. Each of these symptoms continues to increase. After a time his legs swell; his countenance becomes more and more livid; his forehead sometimes perspires, whilst the rest of his body is cold; the pulse is quick, feeble, and irregular; and he makes but little water. He at length draws his breath with the utmost labour, and can scarcely answer a question on account of the difficulty of speaking. In some cases he is obliged constantly to lean rather forwards, and to support himself on his elbows, as he is scarcely capable of breathing in any other position. Although patients labouring under dropsy in the chest, which advances slowly, do not experience any considerable degree of pain, yet the distress which they feel is scarcely to be described, till death with slow approaches puts a period to their truly dreadful sufferings.

It will easily be conceived, that as these different disorders, in which winter-cough terminates, often come on in conjunction, the symptoms will also be mixed; and, in different cases, now one symptom will predominate, and then another. But, as I think I have, on the whole, drawn a faithful picture of the several modes, in which this disorder usually terminates, it appears to me unnecessary to give a delineation of the different shades, gradations, and commixtures to be observed in various instances.

§ VI. *How these Complaints are caused.*

It is always of great importance to discover the causes of a complaint, as such discovery may probably lead either to its prevention or cure. And the more prevalent and formidable the disease, of so much the more importance is its ca~~su~~use. We have not to go far to discover the principal causes of consumption and winter-cough. I am persuaded they will on examination be found to lie chiefly in the variableness and frequent severity of the climate. These complaints, as we have before proved, certainly abound in England. From registers of deaths in Berlin and Vienna, places where the weather appears to be as variable as in this country, it will be found, that the number of deaths by consumption perhaps fully equals the proportion observed in London. It will be remarked that Vienna is more to the south than London, and it might hence be supposed that the climate would be more genial. But it is likewise to be observed, that the city is in the neighbourhood of mountains, and that the weather is, perhaps, to the full as variable there as it is here. Besides, when do these diseases make their commencement? Certainly in the severest and most variable weather of winter and spring. I think I may venture to affirm, that where one chronic cough commences in summer, more than twenty begin in the winter or spring. If we go into the warm, settled climates, such as Spain, Italy, and the South of France; or farther south still, to the Madeiras, or the West Indies, we shall now and then meet with consumption, though rarely; but we shall scarcely ever meet with tedious cough and shortness of breath, such as we have described by the name of winter-cough. Yet the inhabitants of some of these climates, when removed to England, are still more liable to these diseases than even the natives themselves. And it is a remark grounded on experience, that let a black man have in England whatever disease he may during the winter, if he is much reduced by it, the lungs will, in all probability, suffer. In fact, the greater number of blacks in our island die of consumption. Nor is this liability to diseases of the lungs confined to man alone: for the different birds and beasts, natives of hot climates, when brought to this country, are very frequently destroyed by consumption; and when examined by dissection, their lungs exhibit the same appearances as those of the human subject dying of the same disease. Yet in all probability not one in fifty, who die in this way, would have died thus, had they remained in their own climate, warm and congenial to their constitution. To what, then, is the origin of these complaints, so frequent in severe and variable climates, and so rare in mild and equable ones; in England originating so frequently in winter and so rarely in summer—to what is their origin to be attributed, but to the variableness and severity of the weather? Exposure to alternations of heat and cold is the common origin of protracted cough and shortness of breath, as well as of consumption. Every individual must have observed that during severe variable weather, *i. e.* during winter and spring, colds much more frequently occur than during the warm settled weather of summer or autumn. When once a cold is caught, this kind of weather renders the cure more difficult, as well as disposes to a renewal of the complaint. And thus a cold, which in summer would have passed away, in winter becomes confirmed consumption or winter-cough. We have before observed, that this winter-cough vanishes on the approach of summer, and, could summer be always continued, would never again appear. All this, I think, is abundantly sufficient to prove, that variable and severe weather is materially concerned in producing and supporting by far the greater number of consumptions and protracted coughs.

§ VII. *How they are to be remedied.*

These endeavours to point out the frequency, the fatality, and the origin of the disorders in question, have been made with a view to their treatment. Their frequency and fatality shew of what importance it must be to enforce a plan of procedure, which will be of utility in these wide-spreading and destructive complaints. Not that it is my intention to speak of all the different modes of treatment which are to be pursued in different circumstances of the diseases now described. In a popular essay like the present, such a plan would probably be not merely useless, but attended with danger to the patient, because he might thus probably be induced to treat himself with the remedies mentioned. Now, to distinguish different diseases, and different shades of the same disease, with the remedies adapted to each variety, requires a much greater degree of experience and observation than persons in common life can possibly possess, however acute or discriminative their reasoning faculties may be. It is well known, that what is of the greatest utility at one period of a complaint is most hurtful at another. Thus that time, during which a complaint is curable, may be lost in consequence of the patient treating himself; and medical aid may now be resorted to in vain. My intention is to point out one remedy, which I conceive to be of the utmost importance. It is, notwithstanding, very rarely employed in the treatment of these complaints; and its merits, I think, have not been sufficiently appreciated by the public, or even by medical practitioners. Did the application of this remedy require the discriminating powers of an experienced physician, I would by no means speak of it in such a publication as the present: but it appears to me to be applicable during all periods of the complaints in question, from their commencement to their last stage. The patients or their attendants must likewise by their own care and attention put it in practice. It is therefore necessary that they should be minutely informed as to every circumstance of the plan. Hence a publication of this kind, pointing out its utility, and the mode of carrying it into effect, ought to be levelled to the comprehension of every individual, and ought not to exceed such a length as every person can read through in a very short space of time.

A new drug need only be recommended to the medical world. A trial of this, in cases where it is likely to prove useful, is made by the medical attendant with the same ease with which any other remedy is given. But, when the remedy proposed is some unusual alteration in the habits and œconomy of the patient, the execution of which must depend on the attention and care of the invalid or of his attendants, it is necessary not merely that the practitioner should be convinced of its utility; but that the minds of the patient, of his friends, and acquaintance, should be prepared for it to a certain degree. Otherwise the medical man, should he propose it, will generally find such excuses, objections, and delays, as will totally wear out his patience, and hinder the execution of the plan. This preparation perhaps may be best effected by a short popular essay, like the present, treating familiarly of the proposed remedy. The remedy is a MODERATE REGULATED TEMPERATURE.

I here beg it may be understood, that I do not recommend this remedy to the exclusion of others. It evidently appears to me, that in diseases of magnitude, like those spoken of here, which so frequently prove fatal, we ought to have recourse to every assistance which nature and art can afford us; otherwise we may be considered in some degree as our own murderers.

§ VIII. *Of regulated equable Temperature.*

A regular or equable temperature is opposed to one that is variable. The climate of England, both in summer and winter, affords an example of the latter: for we rarely find that the thermometer remains stationary any length of time, but is constantly fluctuating, and that frequently in a remarkable manner. Whereas in some countries the comparative regularity is considerable, so that you can almost predict the heat or cold which will be experienced at a given time with a tolerable degree of certainty. A moderate temperature is opposed to very great heat or very great cold. In the complaints in question we do not observe that the excess of heat is in general at all hurtful. Against this, therefore, it is not necessary to guard. But the excess of cold we find to be extremely prejudicial. The excess in this respect must be prevented by all the means which we have in our power. When the air is about the temperature of 60° of Fahrenheit's thermometer, it may be considered as at a moderate degree. And below this the thermometer does not generally fall during summer. At that season of the year, then, no particular precautions need to be observed. But the temperature of our climate in winter, although most excessively various, scarcely ever reaches 60°. The further it descends below that point, the worse the patient, either in incipient consumption or winter-cough, generally finds himself. Therefore it is proposed, as will presently be much more fully explained, that he be stationed in a place, where the temperature is never under that degree, which appears to be most congenial to his health. This is to be done in two ways, the one natural, the other artificial. The former is to be effected by the removal of the patient to a more equably warm climate. Could this be done without difficulty, it would certainly be almost always infinitely preferable to the other. But on a vast variety of accounts it is often totally impracticable. If then a remedy of this kind is to be had recourse to, the artificial plan must be adopted, by the production of a moderate regulated temperature. In order that the patient, who remains in England during winter, may not be exposed to too great cold, he must continue in doors; and the apartments both for sitting and sleeping must, by particular contrivances, be heated up to the point intended. This point is to be ascertained not merely by the feelings of the patient or of his friends, as these are extremely liable to fallacy, but by the more steady measurer of temperature, the thermometer. By this means a moderate artificially-regulated temperature is produced; and the patient may be kept in the heat of spring and summer, whilst the snow and ice are lying on the ground out of doors immediately under his view.

§ IX. *Arguments shewing the Utility of a regulated Temperature.*

That the arguments in favour of this practice may be set in a proper and collective view it will be necessary to repeat, perhaps rather more at large, some things which have already been adverted to. Consumption and habitual cough have been asserted to arise frequently from the severe and variable weather of our climate. But they not merely arise; they continue in consequence of the same circumstance, and ultimately prove fatal from the same cause. A person catches cold more easily in this kind of weather than he does in any other; and very often the complaint lasts then much longer than it would if the weather were warmer or more equable. Hence it is frequently remarked, that a cold at the beginning of winter will lay the foundation for one or other of these complaints, though in the spring it would very soon have totally disappeared; because in one case a succession of unfavourable weather was coming on, and in the other of warm and genial weather. This I can assert from my own experience: for I have often seen patients at the beginning of winter affected with symptoms, which have induced me to consider the complaint a consumption. The sufferers have progressively advanced from bad to worse, and have ultimately died of confirmed consumption. I have seen in spring others with the self-same symptoms. As long as the weather continued severe their complaints have continued to increase. But as warm weather came on, they gradually, under the same treatment, became better, and in the summer entirely recovered. Could these have changed places with those in autumn the event would likewise have been changed. Scarcely ever does an habitual cough arise during spring or summer, but it may, with hardly one exception, be traced to winter. It appears almost necessary, that in order to fix the cough, there should be a succession of cold, or at least of variable weather. Medical men often observe, during the winterly season, that a patient's lungs are immediately conscious of a change of wind from the north-east to the south-west, or even of inferior changes. It is a circumstance usually attendant on habitual cough after it is established, that it is much better, or even well, during the warm weather of summer, and again becomes bad on the approach of the cold blasts of winter. Nor is it in general till the very latest periods of the complaint, that the sick continue to cough during the warm weather of summer. The case I have before cited from Dr. Beddoes is one exactly in point. The patient went through several summers with comparatively good health, whilst his winters were the periods of disease and suffering. Could he have been placed where the temperature was never below 60° he might have lived to old age. Is it not probable, that if you could always produce a temperature equal to that of summer, the consumptive patient would stand a much better chance of recovery, than if he breathed an air at nearly the freezing point? And does not the argument approach much nearer to a certainty with regard to an individual affected with habitual cough? Indeed I have, times without number, been assured by patients affected with this cough, that they felt comparatively well in a warm room, and instantly on opening the door found themselves affected by the cold air of the passage or stairs. Some individuals I have seen, who could scarcely speak, or drag themselves along, so short was their breath, so violent their cough, while they were exposed to the cold air, who soon after coming into a warm room appeared to have scarcely a symptom of the complaint. Here the remedy in question seems to be pointed out so forcibly, that it is impossible for me to use such convincing language as nature herself does.

Writers who treat of consumption have strongly recommended a change, during the winter, from our variable climate to one which is milder and more equable. The west of England, the south of France, Italy, Portugal, &c. have been proposed. And I could cite a number of instances, to a large amount, where the removal to warm countries has been the means of removing a disease, which otherwise would, in all probability, have been fatal. Now on what principle can we suppose these countries to be serviceable, but because the patient is not there exposed to the variable and severe temperature of a northern climate? I have before remarked, that even in those places consumption is occasionally to be found: but it is to be found as a rare disease: it is not the scourge, the pestilence, the endemic of the country. It is a disorder which scarcely ever takes place but in individuals who have a very strong tendency to this kind of complaint; so strong a tendency, that their being placed in circumstances the most favourable, will not secure them from its fatal attacks. It may be objected to this, that a vast number, the greater number, of those who go to such climates, die of the disease without experiencing any relief whatever. This is true. It is likewise true of many who remain in London, in whom consumption has made considerable progress during the winter, that when the spring comes on they find no relief by the approach of warm weather.

Although the greater number of persons who have been exposed to habitual cough during the winter, on the approach of May and June find their complaints much relieved; yet some there are, whose sufferings still continue, and even increase at that period. The same reason may be given for the continuance of the disease in each of these instances, viz. it had made too great progress in the cases in question for the change of climate, in one case by removal, and in the other by the advances of summer, to be productive of any beneficial alteration in the patient's health. But such alteration would, probably, have been effected by a change at an earlier period of the disease. Had the last hundred Englishmen who died of consumption, or habitual cough, been placed from their birth in the West Indies, I firmly believe, that not five of them would have been attacked by consumption, and not two by habitual cough. Or, could they, at the commencement of their complaints, have been suddenly transported thither, not ten of the consumptions would have proceeded, nor two of the habitual coughs. But, in fact, removal to a warm climate is generally put off to the very last, and is considered as a dernier resort, when the physician and patient are mutually, and almost equally tired of each other. Yet the number of instances, where change of climate has produced the most beneficial effects, is very considerable. If persons labouring under the complaints in question could possibly be removed to these genial situations, and that at a sufficiently early period, I should prefer this removal, much prefer it, to shutting them up in rooms for the sake of the temperature; as thus they would have their free liberty, and would enjoy a greater change of atmosphere; both which certainly are extremely desirable. But a thousand circumstances may frequently occur to hinder a patient's removal, who still is capable of employing the means now mentioned, and would gladly have recourse to them. And, surely, our incapacity of employing the best possible method, is no reason why we should not employ any method at all to produce a nearly similar effect. Indeed it is a most severe task for a patient, who probably thinks he is almost dying, to tear himself from all whom he holds most dear, and from his native country, for the purpose of going among persons whose manners, habits, modes of thinking, and language are strange. This is the more severe, when the individual is little able to take care of himself, his body weakened by disease, and his mind perhaps materially depressed by fears for the event of his expedition. A removal to such a distance, under such circumstances, surely requires no common effort of fortitude; so great an effort, as, in his debilitated state, may possibly have a very unfavourable effect on the complaint, and may not allow to change of climate its fair trial. The method of procedure here recommended, is, as I shall hereafter shew, comparatively easy and cheap. It requires no removal from friends, and no very great alteration of habits. I may likewise affirm, that if it is productive of no benefit, there is scarcely a possibility that it should be productive of disadvantage. This is a negative argument, which probably I should not have brought forward, but for this consideration, that, like every other remedy, it must frequently fail. Indeed what remedy will not, especially in diseases of a kind similar to those of which we are now speaking? In such cases it is consolatory to reflect, that the regulated temperature did not in itself produce mischief, nor hindered the employment of other remedies which might have produced benefit. But in a vast number of other instances, it will be advantageous in the highest degree.

§ X. *Cases shewing the Utility of a regulated Temperature in Consumption.*

But, as arguments drawn from analogy, however close that analogy may be, will not amount to direct proof, I shall now mention some instances, in my own practice, and in that of others, where artificial temperature, kept up during the winter season, proved of the greatest service. This is direct, positive proof of the beneficial nature of this remedy in complaints of these kinds; and may give to invalids, afflicted in the same way the most cheering, comfortable hopes that can be afforded them. Had regulated temperature been applied to the extent of its merits, a very great number of cases, in which it had been useful, would have been recorded, and there would have been no necessity for this essay. The cases of this kind on record are not numerous, because the remedy has rarely been adopted. But there are some few where it has been employed, and the result published.

Dr. Beddoes, in his "Observations on the medical and domestic Management of the Consumptive," has given an account of twelve cases, in which artificially regulated temperature was employed during winter. All these patients had consumption; some of them laboured under the disease in its later stages. Of these persons seven recovered, and five died. It should, however, be recollected, that of those who died, two did not persevere in the use of a regulated temperature. They all used other remedies besides a regulation of the heat; some by taking medicines internally; others by inhaling particular vapours. So that the cure of those who recovered, is not to be attributed solely to the regulated temperature. But, that it was a most powerful auxiliary in combating this most dreadful disease, cannot admit of a moment's doubt

Indeed I think, that all the other remedies in nearly the whole of these cases would have proved ineffectual without its assistance. One striking case will probably be acceptable to the reader. I shall give it him in Dr. B's. own words, p. 89, 2d edit. 1801.

§ XI. *Mr. Billingsley's Case.*

" John Billingsley, Esq. of Ashwicke Grove, Somersetshire, had complained of a short cough, in the beginning of the winter 1799 and 1800. This continued, and began by degrees to be accompanied by feverish feelings. Afterwards expectoration took place. All these complaints went on, increasing in regular progression, till March 1800, when I first saw Mr. Billingsley. I found him, in the evening, with a pulse at about 120 in a minute, complaining of cough, pains in the chest, difficulty of breathing, chills, heats, and most profuse nocturnal perspirations. The expectoration amounted to seven ounces in twenty-four hours, and consisted of purulent matter, largely intermixed with mucus. Mr. Billingsley was excessively reduced in strength, and much emaciated.

" To his two medical friends, Mr. Perkins and Mr. Hill, as also to his family, I stated, that he appeared to me verging fast towards the last extremity, if the case were not already desperate.

"To himself, at their desire, I explained as well as I was able, the nature and probable comparative efficiency of the measures that might be adopted for his recovery. I told him that I had no expectation from any medicine but digitalis, occasionally assisted by other articles of the materia medica; but that I was by no means willing to trust to medicine alone. The auxiliary means I had in view were of two kinds: a room, simply heated to above 60°; or a heated atmosphere, impregnated with the exhalations of the cow-house. A third, and in my opinion the only plan remaining, was a long sea voyage. This Mr. Billingsley at once absolutely rejected, adding, that he should prefer the temperated room; but apprehended, that he was too weak to bear removal to Clifton, a distance of about twenty miles.

" It was finally concluded, that the attempt should be made, and that a room should be fitted up, nearly as described in case VI. only that in the present instance two communicating rooms were chosen, in preference to one, the stove supplying hot air being placed in the bed room, and a common fire occasionally made in the sitting room. The stove, as in all the other cases, except the cow-hous cases, was one of those called *empyreal* stoves. It was twelve inches square, and the expense of boring a hole to receive the air pipe, and closing the apertures in the door, added to eleven guineas, the original price, amounted to about fourteen pounds. It was found easy to keep up the fire all night; and, during the whole twenty-four hours, the most perfect equality of temperature could be maintained. The heat most agreeable to Mr. Billingsley was from 60° to 65°.

" He began to take ten drops of saturated tincture of digitalis twice a day, two or three days before taking possession of his apartments. In nine days the chills, heats, nocturnal perspirations, and cough, were sensibly abated. The appetite had greatly improved. The pulse had fallen to about 90 in a minute.

“ In a fortnight Mr. Billingsley found himself much stronger. He never took for a dose above eighteen drops of the tincture of digitalis, and sometimes only two doses a day ; to the last of which was usually added from twelve to twenty drops of the tincture of opium, or corresponding quantities of camphorated tincture of opium.

“ It may be remarked, that Mr. Billingsley's strength, appetite, and spirits improved at an equal rate. At no time did he experience the smallest disagreeable sensation, either from his confinement or his medicine.

" When he had been under this treatment for a little more than three weeks, he proposed to go to Ashwicke Grove, on condition that the weather was fine, for a single night. The reason for this journey being important, my scruples were overruled. He performed it with the most perfect ease and impunity; and from that time took an airing during the sunny part of several fine days.

" This is an important fact, as it shews, that the danger is less than might be apprehended, from passing into a lower temperature from a higher, to which a person with a diseased breast has been for some time accustomed.

" Such precautions as warming, to an unusual degree, the apartments which might be used for sitting or sleeping, were of course employed; and the cooler air after sun-set was avoided. Still, however, Mr. Billingsley, during his absence, must have been immersed in an atmosphere 20° colder than that of his apartments.

" After a confinement of about six weeks, the hectic fever being entirely subdued, the cough and expectoration much reduced, Mr. Billingsley quitted his confinement. He persevered for several weeks longer in the use of digitalis, and entirely recovered in all respects. The recovery, as far as the experience of near a year, including a whole winter, passed without any particular precautions, can justify an opinion, appears to be permanent.

" No inconvenience whatever was felt from exposure to the common atmosphere."

§ XII. ———'*s Case.*

In the Edinburgh Medical and Surgical Journal, vol. I. p. 127, an anonymous correspondent writes as follows: " A suspension of all the symptoms of pulmonary consumption has been effected by living in rooms, the temperature of which was, during the winter, 60° to 65°; during which the pulse was reduced from 130 to 80, the cough disappeared, the breathing became free, the spitting ceased, &c. On going into the air the summer following, although in warm weather, the symptoms from time to time returned, and in the winter following, the temperature not being produced as in the preceding winter, the disorder returned, and in three months proved fatal."

It is probable in this instance that the patient's life might have been preserved many years by a removal to a warm climate, or by the careful production of a regulated temperature during winter. By perseverance in this plan the phthisical disposition might possibly have ultimately been diminished, if not altogether removed.

§ XIII. *Mrs. ——'s Case.*

Dr. Jenner, the benefactor of the human race, has favoured me with the following case of a lady nearly related to himself, which I give in his own words. "Mrs. —— was attacked about fifteen years ago, at the commencement of winter, with an inflammatory affection of the lungs, which brought on spitting of blood. This was followed by a train of symptoms, which left but little room for me to doubt, that she was on the verge of pulmonary consumption. Having often, under similar diseases of the chest, in common with others of the profession, experienced the good effects of the removal of patients to a warmer climate, I saw no reason why we were not to hope for the like advantages from an atmosphere rendered temperate by art. This was tried, and with the most happy result. The temperature of her chambers was attentively regulated by a thermometer, which was not suffered to sink below 62° by night: and by day it was kept a few degrees higher. The winter was rigorous; and there was some difficulty, by means of common fire-places, in keeping up a more uniform degree of heat, especially by night. The cough, and all the hectic symptoms, gradually subsided. Mrs. —— did not go out into the open air till it became of an equal temperature with that she had been breathing within doors: and, if I recollect right, this was not till the beginning of the ensuing month of May. But a considerable time before this she had regained her usual health. Since this period Mrs. —— has found, in the course of some succeeding winters, the recurrence of the symptoms in a less violent degree; but their ill tendency has been uniformly checked by avoiding exposure to the cold air. The concise history of this case is so similar to others which have come under my observation, that it would be little more than a mere repetition to lay them before you."

§ XIV. *Cases under the Care of the Author.—Miss H's Case.*

Of the cases under my own care I shall relate only two, which may be considered as specimens of a few instances where I have employed a regulated temperature. As yet I have not lost any patient who used this remedy. It therefore would be useless to relate the remaining cases, as they would be only a reiteration of what will be mentioned in these two instances. I do not think it proper to refer to any which were merely under my own care; because it would generally be unpleasant to the individuals to mention names at length. The dependence then must rest entirely on the veracity of the narrator. And we all know how apt every one is, even where there is no intention of deceiving, to misrepresent circumstances, when he is supporting a favourite opinion. But by mentioning the name of a respectable practitioner as a witness every doubt is removed.

Miss H. before I saw her on the 1st of January 1809, had been attended by Mr. Wallace, jun. of Carshalton. She was about 20 years of age, tall, and thin. During a year preceding the time of my seeing her, she felt weakly and was easily fatigued. She represented herself as having caught cold three months before my attendance, and as having been worse in every respect since that time. I will not relate the history of those symptoms to which I was not a witness; but will merely state the situation in which I found her. She complained of pain in her left side, which, although not very acute, was aggravated when she coughed. The cough teased her sometimes a good deal, at others not much. The expectoration was not considerable, was thrown up with difficulty, and was rather frothy. A small quantity of blood was occasionally discharged streaking the expectoration. Her strength was extremely diminished, so that she was greatly fatigued by having her clothes put on, and by being placed in a great chair near the bedside; or by being engaged in a very little conversation. She was frequently, but not always, very hot towards night, and perspired towards morning. She had no appetite; and was always worse when the weather became colder. Her pulse was very much quickened. From these various symptoms conjoined; but more especially from the excessive debility which she experienced, from her great emaciation, and the difficulty of removing the pains in her chest, Mr. Wallace and I were strongly of opinion, that she could not survive till spring. As it was now the midst of winter, we had reason to expect much cold weather. I therefore, in the strongest and most pointed manner, urged the necessity of keeping Miss H's apartment at a regulated temperature: and happily prevailed on her and her relatives to consent to a stove being fixed in the chamber, in which she was. Every one will recollect that, subsequent to the period of which I am speaking, the weather was uncommonly severe. Mr. H. my patient's father, had been accustomed to a regulated temperature in his hot-house, and therefore well understood the use of a thermometer in his daughter's chamber, and of other requisites for such an undertaking. The temperature from that time was generally kept to the standard of from 60° to 65°. It is not my intention to relate the various circumstances which subsequently occurred during the remainder of the winter, as I merely wish to impress general results on the mind. Although

Miss H. at the beginning of spring was so excessively weak, as literally to be scarcely able to raise her hand from the place where it lay; yet I am happy to say that she is at this moment quite recovered; has a good appetite; can walk several miles without fatigue; has regained her flesh: the pain in the chest, cough, and nocturnal perspirations have entirely ceased, so that I consider her as thoroughly recovered. Mr. Wallace, the patient herself, and the family, perfectly agree with me in the opinion, that had not a regulated temperature been employed, she would certainly have been incapable of surviving the severity of the season.

§ XV. *Miss B's Case.*

At the latter end of February, 1808, I was requested by Mr. Reed, of Mile-End Road, Whitechapel, to visit Miss B. a patient of his, who lived not far from his own house. Miss B. was about thirteen years of age, of a thin delicate habit of body, and pale complexion. Her illness had continued about a month. She coughed frequently, and, occasionally, expectorated a small quantity of frothy phlegm. Her respiration was difficult. She complained of pains in her chest, which were aggravated when she coughed. Her appetite was much impaired, and thirst considerable. She was extremely debilitated. Her pulse was very rapid. Although her complexion was generally pallid, she had frequently flushings in the face. The palms of the hands and soles of the feet often burnt. Towards evening she became extremely hot; and, on falling asleep, perspired profusely. Since the commencement of the illness she had fallen away considerably. These symptoms sufficiently denoted that a consumption had commenced. And, as the symptoms were progressively becoming worse, immediate and active measures were absolutely necessary. Conceiving that the season of the year was much against this young lady, I very strongly urged a regulated temperature. I have every reason to think, that this remedy, as well as the others which I enjoined, was strictly pursued. In a short time I had the pleasure of seeing Miss B. evidently improved. The latter end of March, although she was still weak, she was so far recovered as to enable me to take my leave. Miss B. has had no return of the complaint, on account of which I visited her. In this case it will be observed, that other remedies were employed besides a regulated temperature. And there can be no doubt, that they each contributed their share to the recovery of this young lady. Indeed, in cases of such imminent danger, it would be the height of criminality or madness to trust to any one remedy alone, when others are known, which have been repeatedly useful. But surely it is equally mad or criminal to neglect so important an addition to our remedies as regulated temperature is, when it is so easily within our power. From what I have observed in other cases of a kind similar to that of Miss B. I am convinced, that much was due to the care with which the room in which she remained (for she remained always in the same room) was kept at a given temperature.

§ XVI. *Testimonies in favour of regulated temperature in Winter-cough.*

Although winter-cough has not been much noticed, either in distinct treatises or in treatises on the practice of medicine, yet in the reports of periodical writers it exhibits during the colder months of the year a very prominent appearance. Still I do not recollect in any of these reports a single case in which regulated temperature had been employed. Two writers refer to it as a remedy in winter-cough; but do not give any instance in which it had been used. Dr. Beddoes, in his book on Consumption, Digitalis, and Scrophula, 2d edit. p. 108, has the following observations. "I am sorry I have no case to relate of *catarrhus senilis,* or that affection of the lungs, which renders old people in winter so liable to a constant severe cough, and profuse secretion of mucus. My observations, I think, justify me in recommending warmed apartments in this disease with the greatest confidence. The confinement need not be close. The foregoing examples sufficiently shew that the open air might be freely enjoyed during the best part of the milder days of winter. To be exposed to severe weather would not be enjoyment, but its opposite."

Dr. Badham gives his sentiments relative to this treatment of chronic bronchitis, *i. e.* winter-cough, in the following terms (Observations on the inflammatory Affections of the Mucus Membrane of the Bronchiæ, p. 122). "An uniform moderate temperature, to be secured only by confinement to the house during the unfriendly winter of this climate, is a measure about the propriety of which (where it can be adopted) no person can doubt." Thus therefore both these writers perfectly agree with me as to the propriety of the measure. But neither of them has brought forward any instance where it was used.

§ XVII. *Mr. R.'s Case.*

I will make two remarks before I relate the following case. One is, that few persons affected by winter-cough can be persuaded to adopt a regulated temperature, unless they are worse than usual. Another remark is, that I have seen, and can particularise, a considerable number of individuals who have died in consequence of this disease, whose lives, I am most confident, might have been preserved by the temperature of the room, in which they were, being properly regulated.

Mr. R. aged 72, had been subject during winter to habitual cough and shortness of breath for the last five or six years. His complaint was particularly severe in cold foggy weather. In the middle of January, 1809, the season being extremely cold, he was much worse than usual. He expectorated about half a pint of yellowish phlegm every night, which was raised by very violent coughing, and with considerable difficulty. He had no pain in his chest. His breath was excessively short. The difficulty of breathing was so much aggravated on his lying down, that he could not continue in a recumbent position above five or six minutes at a time; in consequence of which his sleep was continually disturbed. He was extremely feeble; his appetite bad; his pulse small and quick. He was ordered to be confined to his bed-chamber, which was kept, as nearly as it could be, at a regulated temperature between 56° and 60°. During the day particular attention was paid to this circumstance: but, as the fire was permitted to go out at night, the thermometer was then frequently much lower; and at that time the patient's sufferings were generally increased in proportion to the diminution of the temperature.

In this way he was confined about three weeks, during which time the gradual improvement which he experienced was so very uniform, that it would be tedious to relate it. From the second day of his being kept in a regulated temperature the expectoration was gradually diminished, his ability to lie down improved, his appetite increased; and after a short time he was capable of sleeping throughout the whole night without being once awaked. During February the weather was uncommonly mild. In consequence of this circumstance he was enabled to go out of doors, and to transact his usual business. The weather afterwards became severe; and the cough and shortness of breath returned, but not to such a degree as to compel him to have recourse to confinement in a chamber with a regulated temperature. As the weather grew warmer the cough gradually diminished, until it ceased altogether. At the time when he was first confined to a regulated temperature his dissolution was thought by every one to be very rapidly approaching, so violent and alarming were the symptoms. He is now (August 1809,) free from cough, and as well as a person at his advanced age can possibly expect to be. Mr. R.'s amendment may, with the greatest propriety, be attributed almost, if not entirely, to the employment of a regulated temperature; as scarcely any medical treatment was resorted to. This old gentleman was under the care of Mr. Shillitoe, of Jewry Street, Aldgate.

§ XVIII. *Difficulties in establishing a regulated Temperature.*

Many persons will probably be convinced, by these reasonings and these facts, of the utility of a regulated temperature in the complaints in question. But still their sentiments on these subjects may not perfectly agree with mine. Some will raise a variety of objections, by urging the difficulty of carrying the plan into execution. They will say, that the establishment, in the first instance, of the articles necessary for keeping up this constant habitual temperature will cost a large sum of money, and will occasion considerable inconvenience; and that, subsequently, the keeping up the temperature, after the apparatus is fixed, must be attended with much trouble and difficulty to persons not previously accustomed to an apparatus of this kind. To these objections I would reply, that the apparatus will probably not cost so much as many persons might suppose; that the trouble of fixing the apparatus is next to nothing; and that the management, after it is fixed, is very easily learnt. It is true that, during the night, difficulties occur, as attention ought to be paid to the temperature at that season as well as during the day. But surely, when the life of a person is at stake, this can scarcely be considered as of very material consequence. Indeed what desirable end can be gained without trouble? Yet I think the difficulties experienced in the trial will be found to fall short of what might at first sight be supposed. I shall presently relate, very precisely, the trouble and expense, which must be occasioned by the apparatus considered by myself as best adapted to the preservation of a constant regulated temperature by day and night.

Another set of readers may suppose that the production of a regulated temperature is extremely easy, and that a common fire-place in a chamber will produce this effect without any difficulty whatever. I fear these individuals will, on trial, find themselves mistaken: and that it is almost impossible by an open fire-place to keep up a moderate regulated temperature during winter in a room, unless it is very small; and even then much difficulty will attend the endeavour.

§ XIX. *Requisites in a Fire-place intended to produce regulated Temperature.*

But, to state my opinions on this subject clearly, it will be necessary for me to speak rather at large of the different modes in which rooms may be heated; of the advantages and disadvantages of each mode; and of the method, which I conceive, on the whole, to be best adapted for warming the apartments of those who are afflicted with the complaints of which we are speaking.

It is absolutely necessary before I

speak of the individual modes of heating rooms, that the rules, by which these modes are to be appreciated, should be laid down.

In all apartments, but more especially in those of invalids, two circumstances are to be attended to, 1. The temperature of the room being kept at a proper degree. 2. The hindering the air in the room from becoming vitiated. I have already enlarged sufficiently on the first of these points. A few words must be bestowed on the second. If a room were made perfectly air-tight, by stopping up all the crevices and cracks, so that the air could not possibly be changed, and a single individual were placed in this room, the consequence would be, that, however large the room was, the person in a short space of time must die. The smaller the room the more speedily would this fatal event take place. If a candle were put in the room, this would quickly consume the pure air; and then the candle would go out; because the same kind of air, which is necessary to the support of flame, is necessary to the support of a breathing animal. If a large hole were made in any part of the room, so that the air might freely pass in and out through that opening, the individual would not then be hurt by breathing the air of the room, and the candle would burn very well. But if the hole were made extremely small, so as to allow the air to be changed only in a very trifling degree, it is possible a man might live there for a long time: but, as the change of air would be inconsiderable, he would suffer materially in his health, and probably fall ultimately, although not immediately, a victim to the effects of the bad air. The sudden noxious influence of air vitiated by being breathed was, perhaps, never manifested more strongly than in the black-hole at Calcutta, where one hundred and forty-six persons were shut up in a small room during fourteen hours. Of these only twenty-three survived, one hundred and twenty-three having perished in this short space of time. Yet had any one of these poor sufferers, while almost in the act of expiring, been brought out into the open air, it is probable he would have recovered. The ricketty and unhealthy appearance of children shut up in lanes and alleys, and in the close rooms of large manufacturing towns, is owing, among other causes, in a very great degree to the bad air which they breathe: as the ruddy and healthy appearance of children in open country places very much depends on their inhaling a pure air. The importance of its free circulation arises from various circumstances. The atmospherical air is a compound body, consisting of about one fourth vital air and three fourths azotic air. The latter uncombined is not capable of supporting life or flame; when combined it serves as a diluent to the vital air. Azotic air appears to have in itself no positive bad effects on life or flame. At each respiration of a person breathing, or during the burning of a candle, some of the vital air is consumed, and a quantity of another kind of air is given out from the lungs, or from the flame of the candle. This is called fixed air: and is positively prejudicial when breathed. Now, as in a room perfectly air-tight, a person or candle is constantly consuming the vital air and giving out fixed air, it follows, when the vital air is nearly consumed, and fixed air substituted, that the individual must die, or the candle go out. But if a candle or a person be placed, where there is a less proportion than usual of vital air to the azotic, the consequence will be, that the candle will burn with less than its customary brightness, and the functions of the man will be impeded; because, although there is a supply of vital air, yet that is not the full supply sufficient to keep up the functions in their vigour. Hence the deaths in the black hole at Calcutta: hence the pernicious qualities of playhouses and crowded assemblies; as there the consumption of the vital air must be immense, and the production of fixed air equally large. Our conclusions are, that the temperature of the room must be regulated, and the air must be changed so often, as to hinder that portion contained within the room from becoming vitiated. Circumstances of inferior consideration, but which still must be attended to, are, that the expense and trouble of the apparatus in the first instance, and of keeping it up afterwards, must not be considerable. We shall now bring under review the different modes which have been employed for heating rooms, and judge of them by these four rules.

1. Regulation of temperature.
2. Change of air.

3. Trouble and expense of fixing the apparatus.

4. Trouble and expense of using it.

§ XX. *Of the English open Fire-place.*

The open fire-place, commonly used in England, is too well known to require any description. It is necessary, therefore, only to examine its advantages and disadvantages as a method of heating rooms. Of all the modes ever employed to keep up a regulated temperature in an apartment this is the least effectual. The experience of every individual convinces him, that in a moderate sized room, very little heat is felt at its further end, unless the fire is very large; whilst near the fire he may be almost scorched. The fact is, that the warmth here is imparted, not so much by regularly heating all the particles of air, as by rays which proceed immediately from the fire, and which impinge on the body of the person within their reach. So that if he stands near the fire, he may literally be scorched on one side whilst he is freezing on the other. This is a fact which was proved very sufficiently by an ingenious friend of mine, who is well known in the chemical world. One very cold day, being seated near a fire, he observed that he was uncomfortably hot on one side, and on the other as uncomfortably cold. He therefore placed a thermometer on that side of his body which was furthest from the fire, and found that the mercury stood about the freezing point; whilst that side of his body, which was nearest to the fire, was literally so hot as to be scorched. It can easily be conceived, that this inequality of temperature in different parts of the body at the same time must be extremely prejudicial to persons of such a delicate frame as those, whose cases I am now considering. I have very often observed the thermometer at the end of a moderate-sized room opposite to the fire-place to be 40°, and frequently below that point; while by coming near the fire the external part of the body was more than sufficiently warmed. It is here to be recollected that I am speaking of persons whose lungs are the parts principally affected. The temperature of the air coming to those parts is therefore of the greatest importance. But the temperature of the air inspired is generally by no means equal to that, to which the external part of the body is exposed, whilst a person is standing near the fire; and for this obvious reason, that the rays from the fire strike directly on cold parts and heat them. But the air itself is not proportionally warmed, because these rays pass through it without imparting much heat to its particles; as we see by the experiment mentioned above, where the thermometer was held near the fire, but in such a position as to be sheltered from its rays. Thus whilst the external parts of the body are sufficiently heated by the fire, the air breathed is frequently at the utmost not above 40°, a temperature much less than it ought to be.

Another inconvenience produced by open fire-places is, the very great currents of air which they occasion. For, as the open fire consumes a great quantity of air which is constantly passing through it, that air must be supplied from the room; and what is taken from the room must be supplied by air from without. The consequence is, that a current of air is constantly rushing towards the fire, which current is fed by strong small streams from every crack, crevice, and cranny in the room. This is very easily perceived by putting the hand near any opening, such as the key-hole, or the bottom of the door, especially when it does not exactly fit. It will then be observed, that the larger the fire is, the more considerable will be the stream setting into the room from these openings. It is sometimes perceived, that a fire will not burn when the door is shut, which will blaze up when the door is opened. The reason is obvious, that the crevices and holes from without into the room, are not large enough to supply it with a sufficient current of external air, whereas the supply is sufficient when the door is opened. The Rumfordised stoves do not occasion such a large current of air. According to the old plan of fitting up fire-places the opening of the chimney above the fire was very large: through this opening an immense body of air which did not contribute to the support of the fire, was constantly rushing up the chimney. This aperture, therefore, occasioned a very large and very useless current from without. Whereas, in the

Rumfordised stoves, the opening above the fire into the chimney is much smaller; the air carried up is therefore much less in quantity; and the current from without, in an equally large fire, not so strong. This draught of cold air may be considered in many respects as extremely prejudicial to the persons of whom we are speaking. For we find by experience, that very few circumstances more easily occasion an individual to catch cold than sitting in a draught of air. And there is scarcely any well-warmed room during winter in which you can avoid such an exposure, more especially where the Rumfordised stoves are not adopted. Catching cold may produce consumption or winter-cough in the first instance: and, when one of these diseases is actually formed, I need not say how prejudicial to the patient a fresh cold must be. It certainly will aggravate the original disease very considerably; and therefore ought, if possible, to be avoided.

But there is no mode of heating rooms which contributes so much to changing the air as this does; for the constant current up the chimney occasions a constant current from without; and thus the particles of air are continually varied. Yet this alteration is not quite so considerable as perhaps might at first sight be supposed. This will appear, when we consider, that the hottest air always ascends to the highest parts of the room, where, if it has not the means of escaping, it will remain for a considerable time, until it becomes sufficiently cool to descend. But almost the only part, through which it escapes from a room in winter, is the fire-place, as we can very easily perceive by holding our hand near a crack at almost any part of the room, when we shall find that the air from without is rushing in, and not the air from within rushing out. The chimney-piece does not generally reach to half the height of the room, which is lower than where the heated air is situated. For the reasons assigned, the warm air, not descending, still remains stationary; while the air below, i. e. that which is colder, and consequently specifically heavier, will constantly be rushing towards the fire, and therefore be continually changed. The thermometer will often shew a marked difference between the air at the upper and lower part of a room where there is a fire. Hence we perceive why the air in the lower part of a room is continually changed, while that in the upper part of the same room is but little altered.

With regard to the original cost of these fire-places, and the degree of ease with which the heat, they give out, is kept up, I need say nothing, as these are now the common fireplaces of the country; and consequently no one can be ignorant of such circumstances. But one thing I ought to observe, that they consume a much larger quantity of fuel, even when they are Rumfordised, than many other contrivances for heating rooms. The principal reason of this is, because the air, which has passed through the fire, immediately goes up the chimney, and thus carries off an immense portion of heat, which, by certain contrivances, might be employed to regulate the temperature of the room. A large quantity of air (as I have before observed) is also constantly withdrawn from the apartment by the opening above the fire. This more especially applies to the old fire-places. But even on the Rumfordised plan this quantity appears not to be inconsiderable.

§ XXI. *Of the German Stove.*

The German stove is so little known in this country, that it is necessary to describe it. Suppose a small book-case placed against the wall of a room, to which case there was no direct opening but by means of a hole made through the wall from the passage on the outside, so that the internal part of the book-case had no immediate communication whatever with the room in which it was placed. Convert this wooden piece of furniture into an iron one made of the same size externally, although a little different in shape. The internal arrangement is still more unlike; for instead of shelves to hold books, there are several pieces of iron placed for the purpose of delaying the passage of the smoke, by causing it to make various convolutions. It thus has the opportunity of throwing off its heat much more than if it pressed onwards in one straight line. This iron machine is heated by means of a fire kindled in its lower part: the fuel is introduced through the hole communicating with the passage without the room. Now it is obvious, that when the sides of the stove are heated, this heat will be dispersed over the apartment, which by degrees will be warmed more and more, until it is almost of an uniform temperature. It is the custom in Germany for the maid servant who lights the fire in the stove to rise earlier by some hours than the rest of the family, that the room may acquire a nearly equable temperature previous to their entrance into it.

The Russian stove closely resembles the German, with this difference, that, instead of being made of iron, it is made of earthen-ware. The consequence is, that the German stove is much more quickly heated, and can be raised to a higher degree than the Russian; because iron is a much better conductor of heat than earthen-ware. But the latter retains its heat longer, and is more uniform in its action. If any person from this description has not an idea of the German and Russian stoves, he may very easily obtain it by examining a hot-house, which he will find warmed precisely on the same principle; for here there is a fire made to communicate with the outside of the hot-house, which heats the building by means of a flue passing completely round its internal part. As this flue is made of earthen-ware, it gives a very good idea of the effect produced by the Russian stoves. The best example which I am capable of producing of the German stove in this country is the sugar house, the warmth of which is emitted from iron flues, and consequently may be considered as a specimen of this kind.

By means of this stove the heat may be kept at nearly, although not quite, an equal temperature all over a room. A temperature, at any given part of the room, may be preserved at almost any given point, *e. g.* 65° without the fear of its being ever raised much too high. The warming of the room, then, is perfectly answered, as may easily be verified by any individual, who will take the trouble of going into a hot-house or sugar-house. In Germany, instead of crowding round the fire-place, as we do in this country during winter, the company sit dispersed in different parts of the room, as we do here during summer. The reason is obvious, because every part of the room is warm.

But in causing a change of air the German stove is extremely defective. The faint sensation, which a person experiences when he enters a sugar-house or a hot-house, may in part be attributed to the plants in the one case, and to the sugar in the other. These without doubt contribute to it in some degree. But I can testify from experience, that almost always in German rooms there is a closeness of feeling, which, to a person accustomed to free air, is extremely unpleasant, not to say unwholesome. And when we examine the manner in which the room is heated, we must be convinced, that there is scarcely any circulation of air; but that, with very little alteration, the same air is continued in the room; and, consequently, that if only a single individual remains in that room, the air must be excessively vitiated in a short space of time. The windows are closed as tight as they can be; the door fits as exactly as the carpenter can make it. The stove is air-tight with regard to the room. Here then there is nothing which occasions a constant current of air, as in the open English fire, which, like the sucker of a pump, draws to itself a perpetual stream, and thus forces air into the room from every crevice. Should any one attempt to alter this stagnation of the air by opening ventilators, he would probably defeat the very principle of the German stove, which is that of confining the air. It is likewise to be recollected, that every person is in winter extremely remiss in keeping open a ventilator, which generally occasions a present inconvenience; so that ventilators, which are closed or open at pleasure, must not be too much confided in. To write from experience I may affirm, that I do not recollect having seen a single ventilator in Germany; but I have repeatedly seen double windows. In speaking of the manner in which air is affected by these stoves, it is to be recollected, that the German stove has its sides frequently heated very much, when the fire within is strong. The consequence of this is the occasional decomposition of the vapour in the atmosphere causing an evolution of inflammable air. Some of the light particles floating in the room, when they come into contact with the stove, are also burnt.

By these means the air is in part vitiated, and some little smell is occasioned. This is an inconvenience, though certainly of no great magnitude, which is attendant on the German stove; but from which the Russian stove, as the heat of its sides is never so great, is totally free.

With respect to the expense of these stoves, I believe the original cost of the German stove to be rather, although not materially, greater than that of our common fire-places. In England, as it is not an article so generally used, it would certainly, at first, be considerably dearer than the common stove. But the quantity of the fuel consumed is by no means so great; so that here a considerable expense would be saved. Yet, if ventilators were employed, more fuel must be consumed. As I never saw them used, I cannot speak to this point from experience. The trouble I conceive to be about as great as in the open English fire-place. The room which they take up is rather more.

From what I have said of the properties of the German and Russian stoves, it will easily be conceived, that I do not approve of this plan of heating sick rooms. Indeed, when applied to hospitals, I know by experience that it is extremely unpleasant. I have been many times into the wards of hospitals in Germany during winter; and I think I never entered one at that season without instantly perceiving a disagreeable smell, and feeling the conviction forcibly impressed on myself, that the air must be rendered extremely unwholesome by reiterated respiration. Yet the temperature can be kept at any given point; which certainly, in the complaints now under consideration, is a most essential circumstance. The observations just made, apply, only in a more limited degree, to the sick chambers of individuals. The patient continues there constantly, and although the allowance of air for him is much greater than that for each person in an hospital, yet that air is not changed with sufficient frequency. If he could shift rooms very often this plan might be allowed, as thus during his absence the rooms in succession might be supplied with fresh air. But this removal in most cases would be inconvenient, in some impossible. It is in vain to say, that by means of ventilators, or by opening the windows, the room might be supplied; for we know the difficulty of governing nurses and attendants in this respect. Experience is here our best guide. And with this guide I will venture to affirm, that sick chambers in Germany almost invariably smell disagreeably, a sufficient evidence that the room has a stagnation of air. This is the fact in Germany; and would be the fact here, were German stoves introduced into this country; for similar causes acting on persons in a similar situation will produce similar effects. Besides this, were the German stove ever so proper in other respects, the difficulty of its adoption in a sick chamber is almost insurmountable. The room must be particularly constructed to admit of this kind of stove: and constituted as our rooms usually are, the trouble and expense would be very considerable indeed. This circumstance alone is sufficient to hinder it from being frequently used, however proper it might be for our purpose in other respects; for, if we desire our plan to be commonly adopted, it must be in itself simple and capable of adoption at a moderate expense.

Under the head of German stoves I class the warming rooms by means of steam: for here, as well as in the German and Russian stove, you have a broad heated surface within the room, constantly distributing its heat, and that without any fire-place opening into the room itself. This plan has been adopted at the Royal Institution, at the London Hospital, and in several large manufactories in the country. I apprehend that the same advantages and disadvantages attend this mode of warming buildings as attend the Russian stove; to which it is more similar than to the German stove. I am of opinion, that for a chamber it is not in general practicable, from the expense and difficulty of procuring, and the trouble of putting up the apparatus, in the first instance. This, I think, will sufficiently appear by considering the method in which apartments are heated by steam. In a building, below the level of the room or rooms to be warmed, a boiler is acted on by a fire in the usual way. This boiler has its lid steam-tight. From the lid of the boiler a pipe goes off, which traverses the apartments to be heated, either horizontally or vertically, as is most convenient. The steam in passing through these pipes becomes condensed, and, in becoming condensed, dispenses much heat; and thus the room is warmed. It is to be recollected, that steam, under ordinary circumstances, is not heated above 212°; and consequently the pipes through which the steam passes are never above, and generally much lower than, that degree. Hence it is evident that these pipes approach nearer in their properties to the Russian than to the German stove.

§ XXII. *Of a Stream of heated Air.*

The third method of heating a room is by means of heated air conveyed into it. This by diffusing itself warms every part of the room. The public has received a very good account of the mode of producing such a stream from Dr. Clarke, of Nottingham, in the Edinburgh Medical and Surgical Journal, Vol. IV. p. 17, where he has described the apparatus employed to heat the wards of the Nottingham Hospital. For a more particular explanation I would refer my readers to this account, and to the plate which accompanies it. A slight sketch given here will be sufficient for my purpose. Suppose a German stove, such as I have above described, to be placed in a cellar, and to be enclosed in a case, the inside of which in every part is two or three inches distant from the outside of the stove. Suppose a number of holes to be made in the lower part of the case, through which air can be admitted between the outside of the stove and the inside of the case. Then suppose a flue or pipe to go from the inside of the case, and to open into the apartment or apartments above the stove. When the stove is heated, the air within the case and close to the stove will b heated likewise. Heated air ascends. This therefore will go up through th pipe into the apartment above. It place will be supplied with cold ai from without through the holes i the lower part of the case; which air by coming into contact with the side of the stove, becomes heated in it turn and ascends. And thus a constant current of heated air is conveye into the apartment.

As I never had the opportunity o seeing this method carried into effect I am not able to say any thing of i from experience. From perusin what Dr. Clarke has written, I thin favourably of the plan; but I do no chuse to give a decided positive opinion, unless this opinion be founded on experience, because we know that, in subjects of this kind, the best reasonings are often proved by experiment to be extremely fallacious. Dr. Clarke assures us, that in this way a regulated temperature of 60° can be kept up in winter. I have not the slightest doubt of this fact, or that, if it were necessary, a temperature much higher might be preserved. The air in the apartments thus warmed may certainly, with proper ventilators, be renewed with a sufficient degree of frequency. In a large building, originally intended to be heated in this manner, I can easily suppose that the expense of the apparatus would not be equal to that of the several fire-places which are usually placed in the same space. Or even in a large building, to which this apparatus was subsequently added, I should not imagine the expense would be very considerable. It appears to me likewise, that the expense of fuel could not be by any means so great, as in rooms warmed in the common method; and the trouble of keeping up a single fire must be comparatively very trifling. But still I think this method of heating single rooms could not be adopted in the instance which I have more immediately under consideration, *i. e.* where a single individual of a family requires one or two apartments in a house to be warmed for his use to a regular moderate standard. In a case of this kind the apparatus would be far too troublesome to be used in many houses. The consequence would be, that, notwithstanding the excellence of the thing in itself, it would very rarely be adopted.

§ XXIII. *Of the compound German Stove.*

Having mentioned the three plans on which the heating of rooms is conducted; and having shewn the inconveniences of each, which render them in a greater or less degree ineligible for the purpose more immediately under our consideration, I shall now speak of that plan which I conceive to be most eligible, as uniting in itself the powers of regulating the temperature of the apartment, and occasioning a proper change in the air by which it is filled,—with ease and moderation of expense in its original construction, and with facility and cheapness in its subsequent management. This plan is an union of the English and German stoves, a kind of stove by no means uncommon in this country or in Germany. It might be denominated the compound German stove, if it were necessary to distinguish it by any particular title. The common shop-stove and the ironing-stove used in laundries are each of this description. It consists of a stove, of any shape, projecting some distance into the room which it is to heat, and opening into this room. It resembles the English fire-place, because it opens into the apartment which it warms, thus causing a constant ventilation. It resembles the German stove, because it exposes a large heated surface, continually warming the particles of air which come into contact with its sides. Although this stove was so well known in England, I do not know that it was ever applied to the keeping up an equable temperature in a chamber, till Dr. Beddoes used it (with a little variation) in some cases, and found it to succeed extremely well. My own experience of this kind of stove has been considerable, as, about ten years ago, the parlour in which I usually sat during two successive winters was heated in this manner; and in the house I now occupy, my common sitting room has a stove almost of this description which has been used constantly the last two winters. But as I particularly recommend this kind of stove I shall enter rather more into detail with respect to it, than I have with respect to either of the other modes of heating an apartment. Perhaps the best method of doing this, and at the same time of shewing the practicability of what I propose, will be by giving a description of Miss H's chamber, and of the stove by which it was warmed; as thus the mutual proportions of the one to the other will be immediately perceived. This room is thirteen and a half feet long, twelve feet wide, and eight and a half feet high. A common ironing stove was procured, twelve inches long, nine inches wide, and nine inches high. This, by my direction, was placed as far as it conveniently could be from the walls of the room, in order that every part of the room might be the more equably warmed. It accordingly stood two feet from the chimney-piece, which projected ten inches from the nearest wall. Its distance from the next nearest wall was five feet. A chimney-board was made by a carpenter to fit into the fire-place vertically. In the upper part of this a hole was cut, through which the flue of the stove passed. The stove was fixed so low, that the flue, which had an elbow almost immediately after quitting the stove vertically, then passed nearly, but not quite, horizontally, as it gradually ascended from the stove to the hole in the chimney-board. The stove stood in a flat iron dish, with the rim very slightly raised. This was placed on the floor, and projected for some distance round the stove, to hinder the cinders which occasionally fell out from setting fire to the boards. I have entered into these particulars, that they may be a guide to any person who wishes to put up such a stove in a chamber. At first some little inconveniences were found in the management of the fire. But in a day or two these were completely overcome, so that, although the weather during the spring of this year (1809) was very severe, the chamber could always be kept with the greatest ease at a temperature from 60° to 65°. In order that this temperature might be strictly preserved, a thermometer was always hung up close to the head of Miss H's bed. Notwithstanding the heat was thus kept up, a person entering the room from the open air, could not perceive any unpleasant, close, or confined sensation. It is worth while noticing that the fire never smoked, a circumstance of some consequence in a sick room, particularly where the lungs are affected. A stove of this kind with a flue and dish would cost about three guineas; a chimney-board, together with some incidental expenses in putting it up, about seven shillings, making out altogether the sum of three pounds ten shillings. The shape of the stove is of no consequence. I have mentioned the ironing stove as being, I believe, the cheapest. I have stated these particulars thus exactly, as I think they prove the points which I am endeavouring to establish. It is easy to conceive, that a stove, which stands out in a room at some distance from the walls, will keep up an equable temperature all over the room, much better than a fire-place situated close to one of its walls. From the large heated surface of the stove, constantly surrounded by the air of the chamber, as well as from the distance which the smoke has to travel before it ascends the chimney, a much smaller quantity of heat uselessly escapes up the chimney than in the common English fire-places. Hence we may easily credit, that the part of the room farthest from the stove could be kept at an equable temperature of 60° or 65°. The air of the room was constantly changed, although not with the same degree of quickness, with which it is changed by the common fire-place; for the opening into this stove is only of sufficient width to let the air enter which is necessary for the fire. A sufficient change thus takes place to keep the air pure in a moderate sized room, without occasioning those strong currents and draughts, so troublesome in our wide open fire-places. But if from accident the air at any time should appear at all vitiated, the draught may easily be increased, and the room ventilated by augmenting the fire in the stove, and opening sufficiently the door or window. The expense attending this kind of stove I have stated at three pounds ten shillings, which cannot be considered as any very extraordinary sum; and the labour of putting it up is inconsiderable. The trouble of preserving the heat of the stove is not greater than that of keeping up a common fire; and the expense is not so great, as it does not consume so much fuel. The principal trouble, attendant on a regulated temperature, is, that some person must look after the fire by night as well as by day. But this trouble is incident not merely to the mode which I am now recommending, but to every mode of preserving the temperature constantly at an equal standard. The plan adopted by the friends of Miss H. was, that some one of the family sat up late, and just before going to bed raised the fire, which occasioned no danger, as the extensive iron plate placed around the stove on the floor, effectually secured the boards from accidents. Another of the family rose early in the morning, and immediately kindled the fire in Miss H's stove. By this management the thermometer rarely sunk considerably during the night, being seldom in the morning much below 60°. But still it must be confessed, that, if practicable, it would be better were the fire kept in during the whole night, as thus the thermometer need never descend lower than the standard; for every degree below that is a deviation, greater or less, from the plan proposed. The expense attending the first establishment of this fireplace I consider as the only additional one, and the trouble of a person sitting up as the only additional trouble. It is true, that in the method adopted by Miss H's friends, the plan was not carried to its greatest perfection: but this near approximation was infinitely better than a total neglect of the plan.

§ XXIV. *Hints to the Consumptive, who adopt a regulated Temperature.*

I shall conclude this Essay by making a few general observations, which I conceive will be of use to those who think of adopting this plan of procedure. Here I would remark, that I am not speaking of the prevention of consumption or winter-cough; but of their treatment after the disease is already formed in some degree. Another remark is, that I do not advise a reliance on regulated temperature alone; as in formidable diseases, like these, every means, which the greatest skill of the medical profession can discover, should certainly be employed.

In every case of consumption, when the weather is at all cold, I consider this plan as universally applicable, and as one which ought to be adopted to the fullest extent. If a removal to a more equable climate can be effected, this certainly is preferable. But where it cannot, artificial means should be resorted to for supplying this defect; and the earlier these are employed, and the more strictly they are adhered to, the greater chance there is of success. The friends of the patient should immediately provide three thermometers, if the patient is in such a state that he is capable of quitting his room and of going out. One of these should be placed out of doors in the shade; another in the parlour; and the third in his bed-room. The patient should be cautious of walking out if the temperature in the open air is much below 60°. And if, on going out, he finds that his breath is rendered shorter, and a cough produced, he should remain at home. The parlour should be kept in such a state, as that the thermometer should never be below 60°. The same may be said of the patient's bed-room. The thermometer in each should be placed in that part of the room which is farthest from the stove. In winter-time, as the temperature out of doors is much below the desired point, the patient should never go out. If he is in such a state, that he can quit his chamber, and go into the parlour, he should never do so until its warmth has been ascertained to be at the proper degree. And when he goes down stairs, having previously warmed a handkerchief, he should hold it before his mouth and nose during his descent from the chamber. His cloathing also should be increased, that he may not be chilled by the air on the stairs. The same precautions must be used on his return to his chamber, which of course must have the fire kindled in it some hours before his return. Indeed the thermometer should here be the only guide. The fire in the chamber should be kept in during the whole night if possible. But if this is found too inconvenient, the person who last goes to bed should make up his fire, and the person who first gets up should rekindle it, as thus the temperature, though not kept up to 60° or 65°, will not fall very much, unless the nights are uncommonly severe; and then, at all events, some one should sit up during the whole night.

When we consider the extreme danger induced by consumption, and the rapid strides which it makes in the cold winter weather, I think this trouble exerted to save a person, usually in the bloom of life, from destruction, will not appear to be too great. I am thoroughly persuaded, that this mode of procedure, adopted early in the disease, and joined to the usual modes of practice, would preserve a great number of lives which are now sacrificed during winter for want of a regulated temperature. It is true, that, when the disease has arrived at a certain height, no regulated temperature, no change of climate, in short, no mode of treatment whatever can be of any service. This is frequently verified by a patient's not experiencing any relief at the coming on of warm weather. But in many other cases this does afford great relief. It certainly is excessively difficult to fix the precise point where the patient is beyond the reach of remedy. But if we do err in fixing this point, it is surely much best to err on the safe side; more especially when we reflect, that, if regulated temperature does no good, it can do no harm, excepting what arises from a small sum of money, and a small portion of time and trouble being thrown away. Patients, who do not perceive an immediate favourable amendment, should not instantly give up the use of a regulated temperature. If it merely stops the progress of consumption, or even if it hinders the disorder from proceeding as rapidly as it formerly did, a material point is gained; a point which may enable the powers of the constitution to rally, and to triumph over the disease. Miss H. was worse in some respects after the regulated temperature had been employed; but evidently did not get worse nearly so fast as she had done before; and, when the spring came on, her health was re-established.

§ XXV. *Hints to Persons afflicted with Winter-cough, who adopt a regulated Temperature.*

What I have said of consumption may, with a little variation, be said of winter-cough. But there is considerable difference between the diseases, since this is not nearly so rapid in its progress as consumption. It may exist for years, frequently for many years; although in the end it generally proves fatal. Another circumstance of difference is this; consumption if stopped in its career will probably be completely cured, and perhaps never afterwards make another attack. Winter-cough, when once thoroughly and completely established, is rarely entirely cured, but generally, at the approach of cold weather, recommences its operations. So that in this complaint we cannot have precisely the same expectations as in incipient consumption. Now, as the danger here is not so pressing, the invalids generally will go out as well in cold as in hot weather. But, if possible, they should go out, during winter, only in the warmest part of the day, and, when they can, should avoid the night air. When they are out of doors, they will feel benefit from holding a warmed handkerchief to the mouth. They should take care to have their apartments warmed at the approach of winter, and should use the thermometer in their apartments, as directed for the consumptive. Since with patients of this description our plan is to be continued for years in cold weather, it is not to be supposed that they will constantly have persons to sit up to preserve the fire through the night. But they should observe the rule, during the whole winter season, of having the fire stirred by the person who goes last to bed, and lighted by that person who first gets up in the morning.

It is not to be expected that every one who has winter-cough will find benefit by this plan of treatment; for there are some few (and those are very few indeed) affected with habitual cough, who find themselves better in the winter than in the summer. Those also, who generally experience amendment in the summer, when the disease has advanced to a very high pitch, will find no relief at the coming on of warm weather. To neither of these descriptions of patients would the regulated temperature be of material service; to the former probably of dis-service. But every sufferer under this complaint, who is better in a warm room than in a cold one, I may safely venture to affirm, will derive benefit from a regulated temperature thus employed. The experiment is almost always worth making, as the inconvenience is but trifling, should it fail; and the advantages immense, should it prove successful. I the more strongly recommend the trial, as I am fully persuaded, that, in at least ninety-nine cases out of an hundred of habitual cough during winter, it would be found a most efficacious remedy.

THE END.

T. Bensley, Printer,
Bolt Court, Fleet Street, London.

n the High Street.

C. VI 78